


Algebra 1 / Cause & Effect
Mathematics and Millennials – 6th




Cause & Effect

Cause & Effect develops Critical & Analytical thinking!

Definition: **An event makes another event happen.**

Much Work = Much Money Food Intake = Weight Gain

Why do things happen? We always want to know!



Direct Relations - 1

V1 variable goes Down & V2 variable goes Down
 V1 variable goes Up & V2 variable goes UP.

Quotient of investigated pairs: V1 & V2 is a constant.

All other variables **must** be constant to investigate.

V1	72	48	36	18	12	6
V2	24	16	12	6	4	2

Direct Relations - 2

Direct Relations are common events in a Real World!

Direct Relations **constantly impact** our daily lives!

Which is Direct Relation! **Definition: Ups & Downs!**

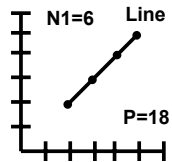
Weather	Degrees ^	Matter ^
Body	Exercise v	Weight ^
School	Homework v	Grades v

Direct Relations - 3

A simple isolated experiment of **Numbers & Product**.

If **N1** increases & **Product** increases & **N2** is constant!
How are N1 and P related? **Definition: Ups & Downs!**

$2 \times 3 = 6$	N1 Inc!	P Inc!
$3 \times 3 = 9$	Quotient of Pairs?	
$4 \times 3 = 12$	Others are constant!	
$5 \times 3 = 15$	N1 & P are Direct!	



Distance = Rate x Time

Algebra formulas or relations provide good examples:

$$\text{Distance} = \text{Rate} \times \text{Time}$$

$D = R \times T$ is great to study Direct & Inverse relations.

Holding R constant! Vary D & T! What is result?

Holding T constant! Vary D & R! What is result?

Hands-On: MS Excel

Using MS Excel: Start at B5 enter 1,2,3,4,5 downward
Starting at C5 enter 2,4,6,8,10 **Note: Ups & Downs!**

Click & Drag to select all entered numbers B5 to C9.
At top click, Chart Icon then click X,Y Scatter option.

Click Image: **Dots & Curved** then **Click Finish!**
A Direct Relationship is represented by a Line! **Why?**

Investigate ordered pairs! Is Quotient a Constant?

Inverse Relations - 1

V1 variable goes **Down** & V2 variable goes **Up**.
V1 variable goes **Up** & V2 variable goes **Down**.

Product of investigated pairs: **V1 & V2** is a constant.

All other variables **must** be constant to investigate.

V1	36	24	18	12	6	3
V2	2	3	4	6	12	24

Inverse Relations - 2

Inverse Relations are common events in a Real World!

Inverse Relations **constantly impact** our daily lives!

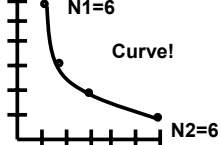
Which is Inverse Relation! **Definition: Ups & Downs!**

Weather	Degrees ^	Matter ^
Body	Exercise v	Weight ^
School	Homework v	Grades v

Inverse Relations - 3

A simple isolated experiment of **Numbers & Product**.
If **N1 increases & N2 decreases** & Product is **constant**?
How are N1 and N2 related? Definition: Ups & Downs!

$1 \times 6 = 6$	N1 Inc! N2 Dec!
$2 \times 3 = 6$	Product of Pairs?
$3 \times 2 = 6$	Others are constant!
$6 \times 1 = 6$	N1 & N2 are Inverse !



Distance = Rate x Time

Algebra formulas or relations provide good examples:
Distance = Rate x Time

$D = R \times T$ is great to study Direct & Inverse relations.

Holding D constant! Vary R & T! What is result?

What would be **other simple formulas** to study?

Hands-On: MS Excel

Using MS Excel! Start at B5 enter 1,2,3,4,6 downward
Starting at C5 enter 12,6,4,3,2 **Note: Ups & Downs!**

Click & Drag to select (all) entered numbers B5 to C9.
At top **click**, Chart Icon **then click** X,Y Scatter option.

Click Image: **Dots & Curved** then **Click Finish!**
Inverse Relation is represented by a Curve! **Why?**

Investigate ordered pairs! Is **Product** a Constant!

Relevant Activities

Divide students in teams of 3 or 4 to brainstorm together.
Provide prepared examples with a few relations DR & IR!
Actual real events in Real World or in School Setting.

Only Relationships of (2) variables can be investigated
with true results, other variables must be held constant.

Each team selects a speaker to present selections of
Direct & Inverse Relations their team has agreed on!

Conclusion
